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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/531,101

**Applicant(s)**

AALTONEN, JANNE

**Examiner**

LUAT PHUNG

**Art Unit**

2416

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/30/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9, 11-14, 16, 17 and 19-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-14, 16, 17 and 19-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 30, 2009 has been entered.

### ***Response to Amendment***

2. Applicant's arguments filed on December 30, 2008 have been fully considered but they are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-4 and 17 are rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (US Pub. 2006/0034313, prior art description in instant application) in view of Sachs, et al (US Pub. 2006/0154603), and further in view of Bhagavath, et al (US 6,163,810).

**Regarding claim 1**, AAPA discloses a multicast-enabled network element (Fig. 1, element 7) comprising:

- a first logical interface (Fig. 1, element 6) configured to receive a file from a content provider (Fig. 1, element 2; para. 4, 7);
- a second logical interface (Fig. 1, element 9a, 9b) configured to forward the file to one or more hosts (Fig. 1, elements 3a, 3b, 3c) as a sequence of data packets (A-E per Fig. 1) in a file delivery transmission (para. 5, 7); and
- a processor (router per para. 5) configured to perform the following:
  - a) receive a first request for the file from a first host; (para. 3)
  - b) define a multicast delivery group including the first host; (para. 3)
  - c) receive a second request for the file from a second host during file delivery transmission of the requested file to the first host; (third host requesting a file after the start of the transmission para. 8)

AAPA does not explicitly disclose:

add the second host to the multicast delivery group, and cause the transmission of a remaining portion of the requested file to both first and second hosts after adding the second host to the multicast delivery group.

Sachs from the same or similar fields of endeavor discloses:

add the second host to the multicast delivery group (additional receiver joining an ongoing multicast session per para. 75), and cause the transmission of a remaining portion of the requested file to both first and second hosts (all data blocks received per para. 79) after adding the second host to the multicast delivery group (additional receiver able to receive data per para. 75).

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine AAPA's multicast method with Sach's approach to adding to a multicast group by allowing hosts to be joined during transmission of a file, and ensuring all packets are received by these hosts. The motivation for doing so would have been to improve reliability and flexibility of file delivery to end users.

The combination of AAPA and Sachs discloses all of the subject matter except:

d) determine whether the second host is situated with a locational area of the first host; and

e) if the second host is situated within the locational area of the first host, add the second host and cause the transmission of a remaining portion.

Bhagavath from the same or similar fields of endeavor discloses determining whether the second host is situated with a locational area of the first host, and if so, adding the host to the multicast group (col. 2, lines 35+; col. 5, lines 10+; unicast host

sending request to join a multicast session to a Multicast-Unicast Group (MUG); it is then determined if this MUG is designated to serve the host based on, e.g., zip code or time zone, i.e., location area being served by this MUG; e.g., a MUG may be designated to serve hosts from the US, another MUG from France)

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine multicast method of AAPA and Sach with multicast group selection based on location of Bhagavath by determining if the host can be served by a location-based multicast server. The motivation for doing so would have been to enable efficient use of network resources by allowing information flow to traverse a shorter distance.

**Regarding claim 2**, AAPA further discloses further configured to transmit the file via a first communication network (para. 8). Bhagavath further discloses receive the second request from the second host via a second communication network. (abstract; col. 1, lines 33+)

**Regarding claim 3**, AAPA further discloses wherein the apparatus is further configured to transmit one or both of a request and the file between the apparatus and the second host via a cellular communications network and the locational area is defined in terms of a cell, and the group is limited to hosts situated in a locational area covered by a single cell. (hosts receiving data in a radio access network (RAN) of cellular network (Fig. 1, hosts 3a, 3b, 3c inside RAN 5; para. 4); it is obvious to one of ordinary skill in the art at the time of the invention that the hosts are in the same location

area (of the RAN) in order to establish radio communication to receive data from the cell (Fig. 1, element 8) in the RAN).

In an alternative rejection, Sachs further discloses wherein the apparatus is further configured to transmit one or both of a request and the file between the apparatus and the second host via a cellular communications network (para. 46) and the locational area is defined in terms of a cell, and the group is limited to hosts situated in a locational area covered by a single cell (para. 48).

**Regarding claim 4**, AAPA further discloses further configured to forward the file to the second host over a wireless communication network, being the last network element situated before an air-interface in a file delivery path between the content provider and the second host. (Fig. 1, elements 2, 5, 7, 3a, 3b, 3c; para. 4)

**Regarding claim 17**, AAPA discloses a method comprising:

a host sending to a network element via a cellular telecommunication network a request to join a group; (para. 3)

receiving a start packet transmitted by the network element which configures a connection between the network element and the host; (para. 5, 7)

receiving a sequence of data packets transmitted by the network element in a first file delivery transmission; (para. 5, 7)

arranging the sequence of data packets in an appropriate order; (para. 5) and

AAPA does not explicitly disclose:

receiving a second file delivery transmission comprising the sequence of data packets;

wherein the host retrieves data packets that were dropped or missed in the first file delivery transmission by retrieving the corresponding data packets in the second file delivery transmission.

Sachs from the same or similar fields of endeavor discloses:

receiving a second file delivery transmission comprising the sequence of data packets; (para. 75, 79)

wherein the host retrieves any--data packets that were dropped or missed in the first file delivery transmission by retrieving the corresponding data packets in the second file delivery transmission. (para. 75, 79)

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine AAPA's multicast method with Sach's approach to adding to a multicast group by allowing hosts to be joined during transmission of a file, and ensuring all packets are received by these hosts. The motivation for doing so would have been to improve reliability and flexibility of file delivery to end users.

The combination of AAPA and Sachs discloses all of the subject matter except receiving, via a different communication network from said cellular telecommunication network, a start packet transmitted by the network element. Bhagavath from the same or similar fields of endeavor discloses receiving a multicast request and selecting a multicast gateway to handle the request; hosts belonging to a multicast group can be members of different networks, and hosts can join and leave a group at will (abstract; col. 1, lines 33+). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to receive a multicast request from a cellular network as



disclosed by AAPA and Sachs and to select a gateway in a different network to handle file delivery. The motivation for doing so would have been to more efficiently utilize network resources.

6. Claims 7 and 8 are rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Sachs, et al and Bhagavath, et al, in further view of Chuah, et al (US 6,515,994).

**Regarding claim 7**, the combination of AAPA, Sachs and Bhagavath discloses substantially all of the subject matter as recited above except wherein the processor is further configured to repeat transmission of the file when a host is added to the group during a transmission of the file. Chuah from the same or similar fields of endeavor discloses retransmission of the file following the file delivery. (col. 5, line 52 to col. 6, line 17) Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine apparatus of AAPA, Sachs and Bhagavath with Chuah's approach to retransmit the file by repeating the file transmission. The motivation for doing so would have been to ensure full delivery of the file to users joining during a file transmission.

**Regarding claim 8**, the combination of AAPA, Sachs and Bhagavath discloses substantially all of the subject matter as recited above except configured to receive a negative acknowledgement message and to treat the message as a request for the file. Chuah from the same or similar fields of endeavor discloses receiving status signal in the form of request for blocks not received and retransmitting the file. (col. 5, line 52 to

col. 6, line 17) Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine apparatus of AAPA, Sachs and Bhagavath with Chuah's approach to re-request transmission by sending the status signal for retransmitting the file. The motivation for doing so would have been to ensure full delivery of the file to users joining during a file transmission.

7. Claim 5 is rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Sachs, et al and Bhagavath, et al, in further view of Chang, et al (US 6,963,972).

**Regarding claim 5**, the combination of AAPA, Sachs and Bhagavath discloses all of the subject matter as recited previously in this office action except further comprising a file request handler configured to encrypt information in headers of the data packets relating to a correct order of data packets in the file delivery transmission. Chang from the same or similar fields of endeavor discloses encrypted headers containing sequence numbers to detect missing components in the data sequence (col. 12, lines 18-35). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the header encryption as suggested by Chang in the apparatus of AAPA, Sachs and Bhagavath in order to detect tampering of the data and to ensure correct sequence of data is received.

8. Claim 6 is rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Sachs, et al and Bhagavath, et al, in further view of Peterka, et al (US Pub. 2002/0174366).

**Regarding claim 6**, the combination of AAPA, Sachs and Bhagavath discloses all of the subject matter as recited previously in this office action except the processor is further configured to log a point in the file delivery transmission at which the second host is added to the group. Peterka from the same or similar fields of endeavor discloses recording the time when a client joins and leaves the multicast (para. 80). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to log the time of joining the multicast group as suggested by Peterka in the apparatus of AAPA, Sachs and Bhagavath for billing purposes.

9. Claims 9, 11, 14 and 16 are rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Chuah, et al. and in further view of Bhagavath, et al.

**Regarding claim 9**, AAPA discloses a method comprising:  
receiving a request for a file from a first host; (para. 3)  
retrieving the file from a content provider; (para. 4, 7)  
defining a group comprising the first host; (para. 3)  
forwarding the file to the group as a sequence of data packets in a file delivery transmission; (para. 5, 7) and

AAPA does not explicitly disclose:

adding to the group any further hosts submitting requests for the file during said file delivery transmission whereby said further hosts receive remaining data packets in said file delivery transmission.

Additionally, Chuah from the same or similar fields of endeavor discloses:

adding to the group any further hosts submitting requests for the file (subsequent joining of destinations per col.3 , lines 46-57) during said file delivery transmission (transmission already in progress per col. 3, lines 46-57) whereby said further hosts receive remaining data packets in said file delivery transmission (until all blocks received per col. 3, lines 46-57).

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine AAPA's multicast method with Chuah's approach to adding to a multicast group by allowing hosts to be joined during transmission of a file, and ensuring all packets are received by these hosts. The motivation for doing so would have been to improve reliability and flexibility of file delivery to end users.

The combination of AAPA and Chuah discloses all of the subject matter except: wherein adding a further host to the group includes comparing a location of the further host with a location of the first host.

Bhagavath from the same or similar fields of endeavor discloses adding a further host to a group having a common location (col. 2, lines 35+; col. 5, lines 10+; unicast host sending request to join a multicast session to a Multicast-Unicast Group (MUG); it is then determined if this MUG is designated to serve the host based on, e.g., zip code

or time zone, i.e., location area being served by this MUG; e.g., a MUG may be designated to serve hosts from the US, another MUG from France)

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine multicast method of AAPA and Chuah with multicast group selection based on location of Bhagavath by determining if the host can be served by a location-based multicast server. The motivation for doing so would have been to enable efficient use of network resources by allowing information flow to traverse a shorter distance.

**Regarding claim 11**, AAPA in view of Chuah and Bhagavath further discloses wherein the apparatus is further configured to transmit one or both of a request and the file between the apparatus and the second host via a cellular communications network and the locational area is defined in terms of a cell, and the group is limited to hosts situated in a locational area covered by a single cell. (Fig. 1, hosts 3a, 3b, 3c inside RAN 5; para. 4; hosts receiving data in a radio access network (RAN) of cellular network). Bhagavath discloses a multicast group being defined in terms of location of hosts (col. 5, lines 28). Thus it would have been obvious to one of ordinary skill in the art at the time of the convention to define a multicast group to include hosts in the same location area, as suggested by Bhagavath, hosts being served via a wireless cell as suggested by AAPA, in order to optimize wireless network usage.

**Regarding claim 14**, Chuah further discloses wherein the processor is further configured to repeat transmission of the file when a host is added to the group during a transmission of the file. (col. 5, line 52 to col. 6, line 17)

**Regarding claim 16**, Chuah further discloses a computer readable medium storing instructions to cause a network element to perform the method of claim 9. (col. 4, lines 27-41).

10. Claim 12 is rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Chuah, et al and Bhagavath, et al, in further view of Chang, et al.

**Regarding claim 12**, the combination of AAPA, Chuah and Bhagavath discloses all of the subject matter as recited previously in this office action except further comprising encrypt information in headers of the data packets relating to a correct order of data packets in the file delivery transmission. Chang from the same or similar fields of endeavor discloses encrypted headers containing sequence numbers to detect missing components in the data sequence (col. 12, lines 18-35). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the header encryption as suggested by Chang in the apparatus of AAPA, Chuah and Bhagavath in order to detect tampering of the data and to ensure correct sequence of data is received.

11. Claim 13 is rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Chuah, et al and Bhagavath, et al, in further view of Peterka, et al.

**Regarding claim 13**, the combination of AAPA, Chuah and Bhagavath discloses all of the subject matter as recited previously in this office action except further comprising, where a further host has submitted a request during the file delivery transmission, logging the point in the file delivery transmission at which the second host is added to the group. Peterka from the same or similar fields of endeavor discloses recording the time when a client joins and leaves the multicast (para. 80). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to log the time of joining the multicast group as suggested by Peterka in the apparatus of AAPA, Chuah and Bhagavath for billing purposes.

12. Claim 19 is rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Chuah, et al and Bhagavath, et al, and further in view of Deng, et al (US 6,208,647).

**Regarding claim 19**, the combination of AAPA, Chuah and Bhagavath discloses all of the subject matter as recited previously in this office action except further comprising:

after all hosts in the group have successfully received the file, maintaining the group active for a predetermined amount of time; and

terminating the group after the predetermined amount of time if no additional host issues a request for the file.

Deng from the same or similar fields of endeavor discloses a timer for the amount of time the group is active (multicast address remaining in MAC address table

per col. 5, lines 49-57), keeping the multicast group active for a period of time when a host joins (multicast address stored in MAC address table and starting a timer per col. 5, line 58 to last line) and terminating the multicast group after a period of time when there's no further requests (multicast address removed from table when there's no request to join per col. 5, line 58 to last line). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the timer of Deng in the method of AAPA, Chuah and Bhagavath by maintaining the multicast group active for a period of time until there's no further request for data. The motivation for doing so would have been to provide a robust and reliable transmission.

13. Claim 20 is rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Sachs, et al and Bhagavath, et al, and further in view of Deng, et al.

**Regarding claim 20**, the combination of AAPA, Sachs and Bhagavath discloses all of the subject matter as recited previously in this office action except wherein said processor is further configured to:

after all hosts in the group have successfully received the file, maintain the group active for a predetermined amount of time; and

terminate the group after the predetermined amount of time if no additional host issues a request for the file.

Deng from the same or similar fields of endeavor discloses a timer for the amount of time the group is active (multicast address remaining in MAC address table



per col. 5, lines 49-57), keeping the multicast group active for a period of time when a host joins (multicast address stored in MAC address table and starting a timer per col. 5, line 58 to last line) and terminating the multicast group after a period of time when there's no further requests (multicast address removed from table when there's no request to join per col. 5, line 58 to last line). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the timer of Deng in the apparatus of AAPA, Sachs and Bhagavath by maintaining the multicast group active for a period of time until there's no further request for data. The motivation for doing so would have been to provide a robust and reliable transmission.

14. Claim 21 is rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Chuah, et al and Bhagavath, et al, and further in view of Virgile, et al (US 6,539,022).

**Regarding claim 21**, the combination of AAPA, Chuah and Bhagavath discloses all of the subject matter as recited previously in this office action except wherein each host in the group is allocated an amount of bandwidth on a network on which the file delivery transmission occurs, and the method further comprises:

multiple hosts in the group sharing their allocated bandwidth to increase a data transfer rate experienced by the hosts in the group.

Virgile from the same or similar fields of endeavor discloses transmission of multicast messages by reducing transmission of unneeded multicast messages to conserve bandwidth (abstract; col. 6, lines 1-14). Thus it would have been obvious to

the person of ordinary skill in the art at the time of the invention to implement the multicast transmission of Virgile in the method of AAPA, Chuah and Bhagavath by reducing transmission of unneeded multicast messages in order to increase the data rate.

15. Claim 22 is rejected under U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art in view of Sachs, et al and Bhagavath, et al, and further in view of Virgile, et al.

**Regarding claim 22**, the combination of AAPA, Sachs and Bhagavath discloses all of the subject matter as recited previously in this office action except wherein each host in the group is allocated an amount of bandwidth on a network on which the file delivery transmission occurs, and the processor is further configured to:

share allocated bandwidth of multiple hosts in the group to increase a data transfer rate experienced by the hosts in the group.

Virgile from the same or similar fields of endeavor discloses transmission of multicast messages by reducing transmission of unneeded multicast messages to conserve bandwidth (abstract; col. 6, lines 1-14). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the multicast transmission of Virgile in the apparatus of AAPA, Sachs and Bhagavath by reducing transmission of unneeded multicast messages in order to increase the data rate.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see form 892).
17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUAT PHUNG whose telephone number is (571) 270-3126. The examiner can normally be reached on M-Th 7:30 AM - 5:00 PM, F 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. P./

Examiner, Art Unit 2416

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/Ricky Ngo/

Supervisory Patent Examiner, Art Unit 2416